DOCUMENT RESUME

ED 265 628 EA 018 112

AUTHOR Settlemier, Ken
TITLE Searching for a Prophet: The Naive State of Education as a Science.
INSTITUTION Oregon School Study Council, Eugene.
PUB DATE Mar 79
NOTE 27p.
PUB TYPE Information Analyses (070) -- Viewpoints (120) -- Collected Works - Serials (022)
JOURNAL CIT OSSC Bulletin; v22 n7 Mar 1979

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Educational Attitudes; Educational Innovation; Educational Philosophy; Educational Research; *Educational Technology; *Educational Theories; Educational Trends; *Foundations of Education

ABSTRACT

Like other social sciences, education has not yet established widespread consensus concerning its own elemental truths. Seeking absolute solutions to the problems of education under such conditions is futile, frequently resulting in the rejection of the good aspects of educational concepts when those concepts fail to meet expectations as educational cure-alls and are replaced by the next popular conception. The most promising and responsible approach to solving these problems is to encourage variety and eclecticism in the hope of constructing a broad base of knowledge from which a truly scientific educational theory can eventually be developed. (PGD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

P. Piele

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

EA 018 112

OSSC BULLETIN

SEARCHING FOR A PROPHET:

THE NAIVE STATE OF EDUCATION AS A SCIENCE

by

Ken Settlemier

Field Training and Service Bureau

University of Oregon

Individual copy--$2.00 ($1.50 if prepaid)
Discount of 10% for 10 or more copies

PREFACE

It is the rare school leader who has time to read current educational theory and consider its applicability for his or her own school district. Nevertheless, theory does give perspective to the important task of school management if one can "step back and look at the state of the art of education." This Bulletin provides an opportunity to gain an overview of important educational theory.

"Searching for a Prophet: The Naive State of Education as a Science," is written by Ken Settlemier, doctoral student in Educational Administration at the University of Oregon. It concerns education--"a fledgling science" --and those who seem to have one best answer to its problems. The author reviews and analyzes relevant educational theories and presents a case for establishing a "cogent, related, combined knowledge base."

Education is a complex system and there are no simple answers to the multitude of problems that confront school leaders. The problems will remain and it is a challenge to school leaders to examine theories and apply those which they deem appropriate and practical. It would seem wise to consider the "wholistic approach"--that is, to review the best thinking of leading academicians and select the ideas that will work in particular situations and settings.

Donnise Brown
Assistant Executive Secretary
Oregon School Study Council

TABLE OF CONTENTS

Page

The Scientific Model and Education 3

Avoiding Dichotomies and Other Oversimplifications 5

Today's Supermarket of Educational Theory and Related Curriculum 6

Education and Politics 8

What to Teach vs. How to Teach 10

Implications for Educational Research 11

Combining and Synthesizing--A Step Toward A Mature Science 14

The I.Q. Testing Controversy--A Lesson in Miniature 15

A Successful Model--Cause for Guarded Optimism 16

A Plea for Reason and the Wholistic Approach 17

BIBLIOGRAPHY 19

SEARCHING FOR A PROPHET:

THE NAIVE STATE OF EDUCATION AS A SCIENCE

Call me a "complexifier," a "humanist," or any other name you will. As an educator I am used to it. Our profession seems to revel in name-calling, even applaud it. No other profession seems to hurl labels, brand ideologies, or over-simplify in the name of progress as much as we do. Why?

I will deal with this phenomenon and others that are a part of the discipline of education by taking a step back and looking at the state of the art of education in an overall, societal perspective. It is healthy to do so occasionally to see if we educators are still in tune with our environment.

We have all watched the pendulum swing from one extreme to another; from one curricular emphasis to another; from one underlying philosophy to another; from one "prophet" to another. This desire to be on the latest bandwagon, to keep up with current trends, generally is well-intentioned and honorably motivated. However, it is rarely productive, long-lasting, or cost-effective. Again, the question is why?

In addressing these questions, it is important to remember we not only affect the society we educate, we also are affected by it. Society is not static but constantly in motion with many forces gaining and losing strength over time as they interact with one another. In a sense

the discipline of education is a community in miniature with many of the same characteristics as the larger society in which it functions.

The rapid technological advances of our society have been a dominant force in this process, placing a high societal value on knowledge, especially scientific knowledge which is tangible, measurable, and readily applied. In his "Emergent Ideological Characteristics of Educational Policy," C.A. Bowers comments on the "high premium placed on orderliness and predictability in our society." He comments on the "mystiqué of science" and how it has given technology the status of a "cardinal belief" because of its tangible, measurable nature. (Bowers, 1977; pp. 32-42) This technocratic ideal, with its underlying message that scientific knowledge leads to success, enjoys wide acceptance in today's society.

The word *science* itself carries many different expectations and connotations in our language. Educators' eagerness to be associated with the label *science* and its inherent status is a prime factor behind the ever-swinging pendulum of educational thought. We quickly jump on the next rising star, following one false prophet after another in the search for the *one* methodology, the *one* right answer.

Simple answers to complex problems are reserved for the naive, and we're often guilty of this tendency. It is my contention that there is no *one* prophet, no *one* methodology, no *one* simple solution to the interrelated political, social and scientific problems of educating our society.

Are there any authentic prophets? Can we isolate some *truths* in education? Is education in its present state a science? These are

difficult but necessary questions if we are going to understand the state of the art of education today. Let's explore these and other questions.

The Scientific Model and Education

It is very helpful to have a foundation or a model to build on when analyzing complex relationships. Education today certainly qualifies as a complex web of ideologies, theories, methods, practices, myths, and truths. We have already discussed education's quest for the status of science and it is in the study of the history of science that we find a likely model to use in our inquiry.

The model is discussed in detail in the book The Structure of Scientific Revolution by Thomas Kuhn. (1970) He points out that in the scientific study of phenomenon you need to have a set of rules or truths that are consensually agreed upon by those exploring the field. These form the governing theory of scientific thought for that discipline. When this state exists, you have a "peaceful interlude" where scientists are guided by a common set of theories, standards and methods. (Wade, 1977; p. 144) Kuhn gives this state the label "paradigm." He describes it as an exploration plan which points to puzzles and guarantees that they can be solved.

This model is easily applied to the natural sciences where rapid progress has been made because of the tangible nature of their knowledge base. The social sciences are harder nuts to crack, however, and most of them have not achieved consensus on a governing set of facts or theories.

Education is no exception. Kuhn would argue that it is a very immature science, if a science at all, with little permanence in the discipline. It is in an early (preparadigm) stage of development.

It is important to understand that these governing theories can and do change over the course of time, however. The underlying reason behind this is the concept of scientific exploration. You can never prove a truth, only eliminate untruths. (Kuhn, 1970) Even when you manage to disprove the established theories and adopt a new set, you are no closer to the truth than you were with the old one. This condition has very interesting ramifications on education's search for a prophet with an associated knowledge base.

If this state is difficult to achieve and at best temporary in the natural sciences, is it even attainable in education and other social sciences? Should it even be sought? I believe the answer is a qualified *yes*. The qualification is essential, however. It hinges on the acceptance that, when dealing with the diverse nature of man in social sciences, we also deal with a diverse nature of governing principles. None of these stands alone and none lend themselves to the tendency of the technocrat to oversimplify and attempt to isolate interrelated phenomena.

Bowers spoke to this tendency when he pointed out that:

> when . . . rigid categories were used to focus the issues in either-or-terms . . . [they] undermined the possibility of a serious debate because the complexity of the two sides was oversimplified and distorted. (1977; p. 52)

Avoiding Dichotomies and Other Oversimplifications

An interesting aspect of the above quote is its applicability to almost any of the dichotomies in education today. The argument between the Behaviorists and the Humanists could easily be substituted. Philip Hosford, in "Behaviorism and Humanism: A Synthesis?," points this out brilliantly. The "overdrawn" debate and "finger-pointing conflict . . . has only served to create an either/or stance that must be recognized as patently ridiculous." (Combs, 1977; p. 52) Arthur Combs goes on to cite Earl Kelley in the same article as saying "whenever an idea can be put into a dichotomy and expressed as either/or, it is almost certain they are both wrong!" (Combs, 1977; p. 53) Hosford argues, and I agree, that both are useful tools which we need to use at "appropriate times for appropriate goals." (Combs, 1977; p. 62)

I would extend that statement to all ideologies in education that have sound bases in theory and successfully demonstrated application. A carpenter uses many tools when building a house, and a mind is certainly more complex than a house. We should use all the tools available to us.

Additional support for this statement is found in a refreshing article by Joseph W. Meeker entitled "Ambidextrous Education." He deals with the theory of Margaret Mead which identifies two patterns of thinking: linear and synthetic. This "right brain/left brain" model argues that humans are designed to interact in a whole world; in the affective and the cognitive domains concurrently. Brains are talented in both, "leaving the balance between them to be influenced . . . by nurture and

education." (Meeker, 1975; p. 41) He also points out that education has concentrated heavily on the linear function of the left brain and sadly neglected the synthetic function of the right brain. "Once education has worked its full will upon a mind, little is left but analytic consciousness." (1975; p. 44) This argument finds sustenance in its bias for "pure" science with its factual base and ability to be measured which favors and nurtures the technocrat. Meeker goes on to warn that "people and their institutions must learn to accommodate the whole brain in a whole world." (1975; p. 43) I would also offer the positive note that I think our survival through various eras of educational practice and political influence is due in large part to this marriage of the linear and synthetic domains. Together, they have successfully resisted untold attempts to separate them.

I believe Meeker would agree with my thesis to stop searching for *the* prophet and draw the best elements from various sources. He argues for this eclectic approach to methodology when he says:

> Permeable mental and physical structures would permit knowledge to do what it does best, to flow energetically among minds and kinds of information, gathering strands of feeling and fact until a newly integrated form is achieved. (1975; p. 48)

Today's Supermarket of Educational Theory and Related Curriculum

With so many ideas, so many theories floating around in the educational supermarket, we could say that we are in the midst of a scientific revolution by Kuhn's definition. I am not a student of, nor well versed

in educational history, but I believe it safe to say there is more discord and active questioning of the basic theories of education now than there was twenty-to-forty years ago. One factor in this change may well be attributable to the Woods Hole Conference of 1959 and Jerome Bruner's book, The Process of Education, which was a product of that conference and proved to be a landmark in educational thought. (Bruner, 1960) Bruner and his colleagues also noted the concentration of effort in teaching the left brain/cognitive/knowledge-based domain and the veritable exclusion of the right brain/affective/intuitive-based domain. They gave credence and, in a sense birth, to a great deal of curriculum revision and serious questioning of the schools and their role and performance in educating the nation's youth. Bruner states in his article "The Process of Education Revisited" that "at Woods Hole and after there was also a great emphasis on active learning, . . . an emphasis on active discovery rather than upon passive consumption of knowledge." (Bruner, 1971; p. 18)

The beginnings of a shift in research focus may be associated with one of the products of that conference, a list of factors they felt were needed in all curriculum programs if they were to speak to the whole person. This list included: Discovery; High Interest; Tuned Developmentally; Intuition Fostered; and Fact/Concept Weaving. (Bruner, 1960)

The parallels between these thoughts and later models such as that offered by Benjamin Bloom in his book Human Characteristics and School Learning are very close. (Bloom, 1976) Bruner also dealt with plateaus, concept mastery, and cross-age and cross-mastery tutoring which also are

fundamental in later models which have been offered as possible solutions. These will be examined later. (Bruner, 1960)

Education and Politics

The fact that the educational system is totally enmeshed in the larger political system in the United States is well established. The two are inextricably interwoven. The conference which resulted in Bruner's book was motivated by Sputnik, as was an increase in Federal Government involvement in education at the time through the creation of funding programs which attempted to influence curriculum. Bruner speaks to this and other political elements of the times in his "Revisited" article. He points out that the turmoil and idealism of the sixties helped force the revolt against the "establishment system." The question of "whether schools . . . might not be part of the problem--rather than a solution to the problem of education" began to take form and was a full-fledged controversy by the 1970s. (1971; p. 19) Bruner, when asked what he thought about American education at that time, stated he could only answer "that it had passed into a state of crisis." (1971; p. 20) Curriculum changes, which were the main emphasis of the sixties, are now just one element in a much larger scope of things.

This state of affairs seems to have nurtured the prophet seekers. We are assaulted with information and theory and it appears that in order to be heard amongst the clatter one had to claim a *pure* solution to cure the ills of education. These oversimplified, orderly and predictable,

and generally "patently ridiculous" extremes gained their share of followers, nonetheless. They were music to the ears of the Simplifiers.

Political movements such as "The Great Society" helped raise our level of consciousness about social concerns such as poverty and discrimination. Educational reform and social reform became synonymous and inseparable. Bowles and Gintis commented on this in their book Schooling in Capitalist America when they said:

> Our approach to U.S. Education suggests that movements for educational reform have faltered through refusing to call into question the basic structure of property and power in economic life. . . (1976; p. 14)

> The relationships of authority and control between administrators and teachers, teachers and students, students and students, and students and their work replicate the hierarchical division of labor which dominates the work force. (1976, p. 12)

They also mention a unique paradox. The "imperatives of profit often pull the school system in opposite directions." (1976; p. 12) This factor grows as the need for middle managers grows and acts as a complicator in attempting resolution of the problems. They argue that "education in the United States is as contradictory and complex as the larger society; no simplistic or mechanical theory can help us understand it." (1976; p. 13) After building a valid premise, however, they proceed to succumb to the all-powerful need to simplify and propose a complete socioeconomic reform of such extensive and far-reaching magnitude that its consequences could not possibly be understood or anticipated. They and others argue that schools have generally proven powerless in effecting social change primarily because they are designed to maintain the status quo. They and others, nonetheless, charge the school system with this

task. This paradox is both discouraging and encouraging. Our collective right brains recognize the interrelated nature of the problem and a search for interrelated solutions goes on in spite of the false prophets and their oversimplified theories. In fact, the journey in-and-of itself is of great benefit even though it is plagued with mirages. We must continue the search for a complete solution representative of the nature of the problem.

What to Teach vs. How to Teach

Many threads exposed in the first half of this paper persist throughout the literature, but there is a perceptable change in emphasis precipitated by a gradual shift in educational thought and research that has taken place in the last few years. Curriculum or *what* is taught has yielded to method or *how* it is taught and/or learned. Neither is independent of the other, but the degree of importance assigned one or the other can have a dramatic influence on one's perception of the problems of education.

With this shift from *what* to *how* comes an increased emphasis and interest in research because of our lack of knowledge on *how* to teach. This problem is compounded because we are dealing with people who vary in their style and approach to teaching and learning. We also need to recognize the interdependency of human nature and its complex reaction to change. This is no small task.

Argyris and Schön delve into this problem in their book Theory in Practice: Increasing Professional Effectiveness. They emphasize the right brain aspect of learning and argue that self-actualization and/or personal causation is a prerequisite to meaningful learning. (Argyris and Schön, 1977) This argument is closely related to Bruner's list of factors needed in curriculum programs and Bloom's theory yet to be examined.

They point out that we have used virtually the same intervention strategies in the past, regardless of the diagnosis of the learner, and many other inconsistencies such as the conflict between fostering the uniqueness of the individual child and large class sizes. (1977; p. 175)

Argyris and Schön make a valuable contribution to the argument for a combined approach by identifying a number of things that must happen together in the administration of schools, teacher education, and teacher behavior if we are to arrive at a model which fosters the individual child. Another pearl among the shells of oversimplification.

Implications for Educational Research

Research and its objective--knowledge--are elemental parts of any *science*, thus an examination of the state of educational research is necessary if we are to understand the state of education today.

The complexity of the educational process has a direct bearing on the area of educational research. The human element dealt with by Argyris and Schön is sufficient cause in itself to require a critical

examination of the issues. Being in a preparadigm state, we have no guiding theory under which to operate. N.L. Gage commented that "the choice of a paradigm, whether deliberate or unthinking, determines much about the research that will be done." (Gage, 1963; p. 96) This preconditioning exerts a strong influence on the way we look at things, the way we think about things, and thus what we will find out about things. This is one of the most difficult obstacles to overcome in conducting meaningful research and in objective analysis of the issues of educational theory. We are often guilty of a simple exchange of prophets without a zealous examination of the alternatives available. This fact, I am sure, relates to the proverbial swinging pendulum of change in educational theory and practice.

Meredith Gall, in a synopsis of research and its inherent pitfalls, pointed out a need to take a step back from our research and objectively question the scales used for rating, the criterion used in judging, the definitions used, and the qualities identified to evaluate learning. Failing to do so, we simply end up perpetuating our unfounded assumptions.[1] In this way the goals of pure research design adopted from the natural sciences are worthwhile. They often defy direct transfer to the social sciences, however, and this requires us to search for new designs that will result in objective examination of the social sciences. This is a task which is easier said than done. We must remember and employ the

---

[1] Meredith Gall speaking to a doctoral seminar, University of Oregon, College of Education, Fall term, 1977.

necessary precautions to assure that we are not guilty of oversimplification and/or exclusion of integral parts of the *whole being*.

Barak Rosenshine of the University of Illinois declared himself a "Simplifier" and applauded the new trend in managing learning as opposed to managing learners.[2] He is a disciple of mastery learning and cited the book Human Characteristics and School Learning by Benjamin S. Bloom. (Bloom, 1976) Both Bloom and Rosenshine push their theories to the extreme, however, and join the ranks of the would-be prophets. Their basic premises are sound and they are essential ingredients in the complete solution we seek. However, they alone will not cure the ills of education.

In "The Acquisition of Knowledge in the Classroom," Berliner and Rosenshine speak of the need to use the student as the "unit of analysis" to show that different "teaching methods have different potential for affecting knowledge acquisition." (1976; p. 8) They go on to say "there must be an elemental internal language which provides meaning for a student's symbolic, iconic, and enactive classroom experiences." (1976; p. 10) So far, so good, but then they take a flying leap and ignore Gall's warnings to completely examine all the interrelated aspects of the theory and its implementation.

Bloom offers the thesis that variations in learning and the level of students' learning are determined by the students' learning history and

---

[2] Barak Rosenshine speaking to a doctoral seminar, University of Oregon, College of Education, Fall term, 1977.

the quality of the instruction that they receive. It is basically sound, and he is also correct in his analysis that flexibility in schools is crucial and that expert planners are required. However, Bloom's proposed model breaks down from overgeneralization. His research is based solely on primary grade levels, and his general extension to all grade levels in the model is stretching the applicability of his theory too far. Although speaking of individual differences in personality and learning style, he comes a long way from the total examination of the *whole being* and a complete understanding of human interactions sought by the Humanists.

Combining and Synthesizing--A step Toward A Mature Science

We must remember not to throw the baby out with the bathwater, however. Although Bloom's theory is not capable of providing a complete theoretical undergirding to educational practice, it does attempt to combine some of the diverse elements in education today such as accountability, back to basics, and humanistic concern for individualized instruction. It offers a good beginning and a valid direction for further research. This effort to combine elements of the problem is noteworthy and represents a major step toward a complete understanding of what we are about.

Brophy and Evertson go a long way toward synthesizing the current knowledge base in their book Learning from Teaching. Their findings contribute substantially to the argument for an eclectic approach and the need for further well designed research in the field. Their conclusions

deal in detail with classroom management, matching teaching to students' abilities, diagnosis and evaluation, giving students opportunities to respond in public, and motivation and incentives. They relate research findings in these areas to socioeconomic status. This is another welcome combination of factors. (Brophy and Evertson, 1976) They found some surprises in terms of expected outcomes (which were based on the inherent unproven assumptions we carry around in our heads which Gall warned us about). This is refreshing in itself as is their plea for a broader research base. N.L. Gage summed up Brophy and Evertson's efforts in relation to the thesis of this paper when he said, "in a field that needs research-based wisdom, this book is a welcome counter to the manifestos of self-declared possessors of sensitive insight." (Gage, 1977; p. 109) It appears that they also see the beginnings of a mature science and recognize that it is incumbent upon us to build on our knowledge base. It is time to abandon the chase for false prophets with *the* answer and the ritualistic complaining about fruitless deadends that goes with it.

The I.Q. Testing Controversy--A Lesson in Miniature

The inherent dangers in adopting false prophets and of mass application of prematurely accepted "knowledge" is classically illustrated in the current controversy of I.Q. testing. The cart has long since passed the horse in this field of education. We have employed mass application of instruments that were not intended for such application. We have generalized when not appropriate, compared when things compared were based

on unlikes, and branded performance without regard to norms. In essence we have proceeded for years as though we understood intelligence when, in fact, there is still a lack of agreement on what it is. "Voluntary Attention" (consciously directing your attention) is generally agreed to be one of the factors of intelligence, and most authors writing about I.Q. deal with it in some respect, but how it is related is still a mystery. Here, then, is another gaping hole in the complete understanding we seek. Until that knowledge base is complete, caution and care in the application of I.Q. testing is paramount. Anything short of that is both imprudent and unforgivable.

A Successful Model--Cause for Guarded Optimism

The Oregon Direct Instructional Model, the basis of the controversial Distar program, is a prime example of a successful blending of a number of knowns in educational research. We often speak of implementing change, of innovation, but it has rarely proven successful. Distar is an exception. Dale Mann, in an article entitled "The Politics of Changing Schools," pinpointed the reason behind this phenomenon when he said "the people at the delivery level have the final and definitive say." (1977; p. 7) Engelmann and Becker recognized that fact and have achieved success in Distar by total control of the content presentation in their curriculum package. They have removed the factor of teacher differentiation which guaranteed the success of their program as well as a strong and pervasive resistance to their program. Such interference with individual

teacher control is seen by many as un-American. In essence, it is an ingenious example of free enterprise.

This fact is both encouraging and discouraging to the thesis of the paper. We can take pride in the fact that the advocates of the *whole* brain have rebelled at the strictly cognitive nature of the model. I suspect Engelman and Becker would welcome the status of *prophets*, and are convinced of the applicability of their model. They do have success. They have brought together knowns in the immature science of teaching and learning. They do provide us with tangible information that should become part of our knowledge base in the pursuit of the complete solution. Their unilateral stance as professed Behaviorists threatens the valid application of those theories, however, even when they are appropriate. That is discouraging.

A Plea for Reason and the Wholistic Approach

Here, then, is the basis for a *plea for reason* to prevail in the pursuit of educational theory. In education today, there is currently too much energy wasted on arguments between the would-be prophets that could be more productive if directed toward mutual efforts to establish a cogent, related, combined knowledge base. People are complex. The education of people is complex. The educational system, if efficient and applicable to the consumers, is likely to be complex. If we, as educators, could agree on this and agree to be eclectic and open-minded, we could work together more productively and our battle would be half won.

Alfred North Whitehead argued brilliantly for the "wholistic" approach. He pointed out, as synthesized by Bernard Murchland, that "literary and philosophical culture, scientific culture, and technical culture form an indisoluble whole." From a pragmatic point of view, education "is the acquisition of the art of the utilization of knowledge." He went on to criticize cognitive education for being "an unrhythmic collection of scraps." (Murchland, 1976)

The "wholistic" element of humanity, and its inherent genius, is in danger if we fail to deal with the "harmony of patterns" that is human interaction. Murchland summarized his point and my thesis beautifully when he said:

> I submit that if we are to put into practice Whitehead's insights, we would be spared the agony of much fruitless discussion and at the same time would find a solid base for the work we profess to be doing. (1976)

We need to expand our knowledge base in education, apply what is relevant to the problems at hand, regardless of its source, examine closely all aspects of what we do, and commit ourselves to a pragmatic, eclectic approach to the problems. We need to cease the naive search for *the* prophet that typifies the state of our science today.

We should not be unduly discouraged. There is hope if we realize that we are in the very beginning stages of a science. We are in a fledgling state and must first build a solid knowledge base if we are to successfully grow beyond our current condition. It isn't a crises. We have survived thus far without a comprehensive knowledge base in education. It is expedient to pursue it, however, because the increased tempo of

change in our society will result in less tolerance for error than we have enjoyed in the past. The assault of technocracy has only begun and it will be harder for "ambidextrous education" to survive without our support. That should prove sufficient stimulus for accepting the challenge of this *call to reason*.

BIBLIOGRAPHY

Argyris, Chris and Schön, Donald A. Theory in Practice: Increasing Professional Effectiveness. San Francisco: Jossey-Bass Publishers, 1977.

Becker, Wesley C. "Teaching Reading and Language to the Disadvantaged--What We Have Learned from Field Research." Harvard Education Review, (November, 1977).

Becker, Wesley C. and Engelmann, Siegfried. The Oregon Direct Instructional Model. Eugene: University of Oregon Follow Through Project, May, 1977.

Becker, Wesley C. and Englemann, Siegfried. "The Direct Instruction Model," a draft chapter to be in Encouraging Change in America's Schools: A Decade of Experimentation, ed. Ray Rhine (to be published by Academic Press in 1977).

Berliner, David C. and Rosenshine, Barak. "The Acquisition of Knowledge in the Classroom." (Submitted to California Commission for Teacher Preparation and Licensing, Sacramento, California, February, 1976).

Bloom, Benjamin S. Human Characteristics and School Learning. New York: McGraw-Hill Book Company, 1976.

Bowers, C.A. "Emergent Ideological Characteristics of Educational Policy." Teachers College Record, Volume 79, No. 1. (September, 1977), p. 33-54.

Bowles, Samuel and Gintis. Herbert. Schooling in Capitalist America. New York: Basic Books, Inc., 1976.

Brophy, Jere E., and Evertson, Carolyn M. Learning from Teaching: A Developmental Perspective. Boston: Allyn and Bacon, Inc., 1976.

Bruner, Jerome. The Process of Education. Cambridge: Harvard University Press, 1960.

Bruner, Jerome S. "The Process of Education Revisited." Phi Delta Kappan, (September, 1971), pp. 18-21.

Combs, Arthur W., Popham, W. James, and Hosford, Philip L. "Behaviorism and Humanism: A Synthesis?" Educational Leadership, (October, 1977), pp. 52-63.

Cronbach, Lee J. "Five Decades of Public Controversy Over Mental Testing." American Psychologist, (January, 1975), pp. 1-14.

Gage, N.L. "Paradigms for Research on Teaching," in Handbook of Research on Teaching, ed. by N.L. Gage (Chicago: Rand-McNally, 1963), pp. 94-141.

Gage, N.L. "Is It Ready?" Review of Learning From Teaching: A Developmental Perspective, by Jere E. Brophy and Carolyn M. Evertson. Contemporary Psychology, Volume 22, Number 2. (1977), pp. 108-109.

Kuhn, Thomas S. The Structure of Scientific Revolutions. Chicago: The University of Chicago Press, 1970.

Mann, Dale. "The Politics of Changing Schools." The Education Digest, (October 1977), pp. 6-9.

Mann, Dale. "A User-Driven Federally Supported System of School Improvement: Design Specification." (A paper prepared for the Annual Meetings of the American Educational Research Association, New York, April 8, 1977).

Mecker, Joseph W. "Ambidextrous Education." North American Review, 260 (Summer 1975), pp. 41-8.

Murchland, Bernard. "Colleges Ought to Inscribe Whitehead's Words Over Their Gates." The Chronicle of Higher Education. Washington, D.C.: The Chronicle of Higher Education, Inc., August 9, 1976.

Rosenshine, Barak and Furst, Norma. "Research on Teacher Performance Criteria," in Research on Teacher Education: A Symposium, ed. by B.O. Smith (Englewood Cliffs, New Jersey: Prentice Hall, 1971), pp. 37-72.

Runkel, Philip J., Schmuck, Richard A., Arends, Jane H. and Francisco, Richard P. "Program A: Strategies of Organizational Change." (a proposal submitted to N.I.E., Eugene, Oregon, 1977).

Tien, Joseleyne Slade. "Everyone Getting Ahead; Nobody Left Behind: Education in the People's Republic of China." The Journal of Educational Thought, Volume 9, Number 3, pp. 183-191.

Tyler, Leona E. "The Intelligence We Test--An Evolving Concept," in The Nature of Intelligence, ed. Loren Resnick (Hillside, New Jersey: Lawrence Earlbaum Associates, 1976), pp. 13-26.

Wade, Nicholas. "Thomas S. Kuhn: Revolutionary Theorist of Science." Science, 197 (July 8, 1977), pp. 143-145.

Wechsler, David. "Intelligence Defined and Undefined: A Relativistic Appraisal." American Psychologist, (February, 1975), pp. 135-139.

OREGON SCHOOL STUDY COUNCIL
124 College of Education
University of Oregon
Eugene, Oregon 97403

Non-Profit
Organization
U.S. Postage
PAID
Permit No. 63
Eugene, Oregon